
1 Site Plan
1/8" = 1'-0"

## Project Keynotes

**ZONING INFORMATION**

| | |
|---|---|
| **ADDRESS** | 2512 124TH PL NE<br>BELLEVUE, WA 98005 |
| **PARCEL#** | 6189200255 |
| **ZONE** | R3.5 |

**DEVELOPMENT AREAS**

| | |
|---|---|
| **SITE AREA** | 14,398 SF |
| **AREA OF STEEP SLOPE** | - 4,806 SF |
| **AREA OF PRIVATE ROAD** | - 1,925 SF |
| **DEVELOPABLE AREA** | 7,667 SF |

**LOT COVERAGE MAX.**
35% X 7,667 = **2,683 SF**
**PROPOSED**

| | |
|---|---|
| EXISTING HOUSE | 1,115 SF |
| ADDITION | 641 SF |
| TOTAL | 1,756 SF (23%) |

**HARD SURFACE MAX.**
75% X 14,398 = **10,798 SF**
**PROPOSED**

| | |
|---|---|
| STRUCTURES | 2,194 SF |
| PAVING | 1,427 SF |
| PRIVATE ROAD | 1,925 SF |
| TOTAL | 5,546 SF (39%) |

**IMPERVIOUS SURFACE MAX.**
45% X 14,398 = **6,479 SF**
**PROPOSED**

| | |
|---|---|
| STRUCTURES | 2,194 SF |
| PAVING | 1,427 SF |
| PRIVATE ROAD | 1,925 SF |
| TOTAL | 5,546 SF (39%) |

**GREENSPACE AREA**

| | |
|---|---|
| 50% OF FRONT YARD | 960 SF |
| PROPOSED | 981 SF |

## General Notes

## Symbol Legend

- PROPERTY LINE
- YARD SETBACK
- 641 NEW CONTOURS
- EXIST. CONTOURS
- CLEARING LIMITS
- ECA BUFFER / SETBACK
- ECA: STEEP SLOPE
- PROPOSED HOUSE
- PROPOSED STRUCTURE ABOVE GRADE


SHUGART
WASSE
WICKWIRE
architecture & interiors

18 DRAVUS STREET, SUITE 100
SEATTLE, WA 98109
P: 206.264.7744
SWW-AI.COM


**Owner**

# Riley Addition

2512 124th Pl NE, Bellevue, WA 98005

9232 REGISTERED ARCHITECT
MATTHEW ISHAC WASSE
STATE OF WASHINGTON

**City of Everett Approvals**

| Revisions | Date |
|---|---|

CALUP

| | |
|---|---|
| Date: | **11.05.2020** |
| SWW #: | **1925** |
| City #: | |
| Drawing: | |
| Approval: | **MIW** |

Site Plan B

A001

GEOTECH
CONSULTANTS, INC.

2401 10th Ave E
Seattle, Washington 98102
(425) 747-5618

November 14, 2019

JN 19423

Joseph Riley
2512 – 124th Place Northeast
Bellevue, Washington 98005

Subject: **Geotechnical Engineering Study and CALUP Considerations**
Proposed Residential Addition
Riley Residence
2512 – 124th Place Northeast
Bellevue, Washington

Dear Mr. and Mrs. Hsu:

This report presents our geotechnical findings and conclusions, including Critical Area Land Use Permit (CALUP) considerations for the proposed addition to your residence. The scope of our services included visiting the site on two occasions to observe the existing conditions and to conduct subsurface explorations, as well as review of published geologic maps for the site vicinity.

Based on the information provided by Shugart Wasse Wickwire, and our discussions with you, we expect that a two-story addition will be constructed on the north side of your existing home. This addition will be built in an existing flat yard area that extends from your residence to near the northern property line of your lot. Both floor levels of the addition will match those of your existing home. As a result, the lower, main floor will be a few feet above the current grade of the yard. No deep excavation, such as for basement spaces, is expected. The western side of the new construction is anticipated to extend no further toward the west than the existing house. This will provide a buffer of at least 15 feet between the new construction and the steep slope located on the west side of the lot. No disturbance of the steep slope is expected.

If the scope of the project changes from what we have described above, we should be provided with revised plans in order to determine if modifications to the recommendations and conclusions of this report are warranted.

## ***SITE CONDITIONS***

The subject property is a rectangular-shaped lot bounded on the west by 124th Place Northeast. Developed single-family lots are located to the north, east, and south of your property. A paved private access drive extending to the several homes south of yours extends through the eastern side of your lot.

Your home is a two-story, mid-entry structure located on the southeastern portion of the lot. There is no garage, with parking available on the private driveway and in a paved area located to the northeast of the house. The lower floor of the house appears to have a slab-on-grade floor. The house is surrounded by yard and landscaping, with walkways and front entry steps between the house and the eastern private driveway. There is a small deck extending westward from the house.

The area of the planned development to the north of the house is grass yard that is essentially flat. Along the north and east sides of the yard is a 2-foot-tall modular block landscape wall that was likely built in front of a short cut to create the flat yard space when the property was originally developed. Between this landscape wall and the neighboring northern lot is a landscaped bed containing some small trees and ornamental plants.

The western approximately one-half of your lot is taken up by a steep, west-facing slope that extends to a gently-sloped area along the eastern edge of the 124th Place Northeast pavement. This steep slope is overgrown with blackberry vines, weeds and other underbrush. There are several large Cottonwood trees located on the lower portion of the slope. Several of these trees appear to be overhanging 124th Place Northeast, and may be located in the public right-of-way. The steep portion of the slope has a height of approximately 20 feet and a measured inclination of 60 to 70 percent. The lower portion of the slope has been oversteepened on part of your lot and the neighboring properties by excavation for 124th Place Northeast. Several of these oversteepened areas have been protected with rockeries of varying heights. We saw no indications of recent instability on the slope within your property or the neighboring lots.

Published geologic maps indicate that your site and surrounding properties are underlain by glacial till, a glacially-compressed mixture of gravel, silt, and fine-grained sand. Glacial till soils are highly cemented, and have high internal strengths. During our second visit to the site on October 29, 2019 we completed two test holes within the northern yard area, in the planned footprint of the addition. These test holes were conducted near the western and eastern sides of the expected addition. The approximate locations of thee test holes are shown on the attached Site Exploration Plan. Logs of the test holes are also attached. The eastern test hole exposed loose, silty sand fill extending to a depth of approximately 1.5 feet below the existing grade. This fill was underlain by gray, slightly gravelly, silty sand that was dense. This dense soil has been glacially compressed, and is referred to as glacial till. The original topsoil and weathered layer had been stripped at this location to reach the glacial till prior to placing the 1.5 feet of fill soil. In the western test hole, fill was exposed to a depth of 2.5 feet. The original topsoil layer had been removed, but the fill was underlain by the typical weathered layer consisting of loose, slightly gravelly, silty sand that had mottling in it. Beneath the weathered soil was dense, glacial till. No seepage was exposed in the two test holes, which were conducted following several months of rainy weather. It is not uncommon to find at least localized zones of subsurface water perched on top of the impervious glacial till following extended wet weather.

## CONCLUSIONS AND RECOMMENDATIONS

### *GENERAL*

*THIS SECTION CONTAINS A SUMMARY OF OUR STUDY AND FINDINGS FOR THE PURPOSES OF A GENERAL OVERVIEW ONLY. MORE SPECIFIC RECOMMENDATIONS AND CONCLUSIONS ARE CONTAINED IN THE REMAINDER OF THIS REPORT. ANY PARTY RELYING ON THIS REPORT SHOULD READ THE ENTIRE DOCUMENT.*

Your property and the planned addition area are underlain by dense, glacially-compressed soil that will be stable under static and design earthquake conditions. The recommendations of this report are intended to prevent the planned new development from adversely impacting the stability of the steep slope located to the west of the planned development area.

We recommend that the foundations for the addition consist of conventional shallow footings bearing directly on the dense glacial till. This applies to all foundations, even interior footings that may only carry partition walls. Overexcavation below expected footing grades may be needed for the western portion of the addition, where deeper fill is present. Where this is necessary, either the foundation walls should be extended downward, or the overexcavation can simply be filled with concrete when the footing itself is poured.

The existing fill, and any remaining old topsoil, is not acceptable to support even a lightly-loaded floor slab without excessive post-construction settlement. If the lower floor will be a slab-on-grade, these soils should be removed, and be replaced using imported granular fill that is easily compacted, such as crushed rock. An alternative to the earthwork required to accomplish this would be to use a framed floor spanning between the foundations, allowing some or all of the fill to remain.

Soil removed from any excavations for the new construction should not be placed west of the new addition or the existing house. Disturbance of the existing vegetation on the steep slope should be avoided. If removal of any of the trees on, or below, the steep slope is planned after having an arborist's assessment, they should be cut down and removed leaving the stump and root ball in place. We could provide additional considerations for this, if tree removal is planned or deemed prudent to avoid a public hazard. A wire-backed silt fence or a construction fence should be erected close to the perimeter of the work area as a visible reminder of the non-disturbance area. Concentrated runoff from the new construction must not be discharged toward, or onto, the steep slope. The site soils are impervious and not feasible for infiltration. Dispersion of storm water is also not feasible, as it would adversely impact the stability of the steep slope.

Beyond the above-discussed silt fence, erosion control measures needed during the site development will depend heavily on the weather conditions that are encountered. Existing vegetation and pavements should be maintained wherever possible. Tracking of soil or mud onto the surrounding pavements must be avoided, and any soil carried offsite by tires or tracks should be immediately cleaned up. Any areas of bare soil around the excavations should be covered with straw, mulch, compost, plastic or gravel. As with any project, periodic maintenance or upgrading of erosion control measures may be necessary to address site conditions throughout construction.

The western slope meets the City of Bellevue's criteria for both a steep slope and a landslide hazard. The new construction will be closer than the City's prescriptive 65-foot building setback (50-foot buffer and 15-foot foundation setback) contained in the municipal code. As a result, we expect that a Critical Area Land Use Permit (CALUP) will need to be obtained. The recommendations presented in this report are intended to prevent adverse impacts to the stability of the slope and to protect the planned addition from potential future shallow slope movement, assuming a minimum buffer/setback of approximately 15 feet from the top of the steep slope. In order to respond to specific geotechnical criteria in the Bellevue Municipal Code for a CALUP, we present the following:

**20.25H.125 Performance standards – Landslide hazards and steep slopes.**

A. The new construction will generally be at, or slightly above, the existing grades. In general, the excavation will be limited to what is necessary to reach the dense bearing soils.
B. The new construction will not extend close to, or onto, the steep slope, preserving the existing landforms and vegetation. The existing buffer area west of the existing house and the proposed addition, above the steep slope, is generally covered with grass and landscaping, providing erosion protection.
C. The proposed development will not result in greater risk or a need for increased buffers on neighboring properties.
D. No significant slopes or retaining walls will be needed for the new construction.

E. The planned development will not encroach to the crest of the slope. The recommendations of this report are intended to prevent the new construction from adversely impacting slope stability.
F. We expect that very limited grading will be needed for the new construction.
G. At this time, freestanding retaining walls outside of the new construction are not anticipated.
H. The new construction will not occur on slopes in excess of 40 percent. As a result, pole-type construction does not need to be considered to limit the modifications to existing grades.
I. Parking or garages will not be constructed on slopes in excess of 40 percent. Therefore, piled deck support structures do not need to be considered.
J. Outside of the footprint of the new construction, we expect that all areas of new permanent disturbance and all areas of temporary disturbance will be mitigated with approved erosion control plans as a part of the building permit.

**Section 20.25H.145 Critical Areas Report – Approval of Modification:**

A. The proposal will not increase the geological hazards to adjacent properties.
B. The proposed modifications to the onsite buffers will not adversely impact other critical areas.
C. The hazard to the project is mitigated to a level equal to or less than would exist if the proposed modifications to critical area buffers were not approved.
D. The proposed development protects life safety under the conditions that we anticipate.
E. This geotechnical report is intended to satisfy this criteria.
F. From our understanding of the current development proposal, it will comply with best management practices.
G. We are not aware of any species of importance in the planned work area.

We recommend including this report, in its entirety, in the project contract documents. This report should also be provided to any future property owners so they will be aware of our findings and recommendations.

## *SEISMIC CONSIDERATIONS*

In accordance with the International Building Code (IBC), the site class within 100 feet of the ground surface is best represented by Site Class Type C (very dense soil).

The glacially-compressed soil that will support the foundations is not susceptible to liquefaction (soil bearing loss), even under the Maximum Considered Earthquake (MCE), which has a probability of occurring once in 2,475 years (2% probability of occurring in 50 years).

## *CONVENTIONAL FOUNDATIONS*

We recommend that continuous and individual spread footings have minimum widths of 16 and 24 inches, respectively. Exterior footings should also be bottomed at least 18 inches below the lowest adjacent finish ground surface for protection against frost and erosion. The local building codes should be reviewed to determine if different footing widths or embedment depths are required. Footing subgrades must be cleaned of loose or disturbed soil prior to pouring concrete. Depending upon site and equipment constraints, this may require removing the disturbed soil by hand.

An allowable bearing pressure of 2,500 pounds per square foot (psf) is appropriate for footings supported on competent native soil. A one-third increase in this design bearing pressure may be used when considering short-term wind or seismic loads. For the above design criteria, it is anticipated that the total post-construction settlement of footings founded on competent native soil

will be less than one-half-inch, with differential settlements on the order of one-quarter-inch in a distance of 25 feet along a continuous footing with a uniform load.

Lateral loads due to wind or seismic forces may be resisted by friction between the foundation and the bearing soil, or by passive earth pressure acting on the vertical, embedded portions of the foundation. For the latter condition, the foundation must be either poured directly against relatively level, undisturbed soil or be surrounded by level, well-compacted fill. We recommend using the following ultimate values for the foundation's resistance to lateral loading:

| PARAMETER | ULTIMATE VALUE |
|---|---|
| Coefficient of Friction | 0.40 |
| Passive Earth Pressure | 300 pcf |

**Where: pcf is Pounds per Cubic Foot, and Passive Earth Pressure is computed using the Equivalent Fluid Density.**

If the ground in front of a foundation is loose or sloping, the passive earth pressure given above will not be appropriate. The above ultimate values for passive earth pressure and coefficient of friction do not include a safety factor.

## *SLABS-ON-GRADE*

The building floors can be constructed as slabs-on-grade atop non-organic native soils, or compacted structural fill placed on competent native soils. The subgrade soil must be in a firm, non-yielding condition at the time of slab construction or underslab fill placement. Any soft areas encountered should be excavated and replaced with select, imported structural fill.

Even where the exposed soils appear dry, water vapor will tend to naturally migrate upward through the soil to the new constructed space above it. This can affect moisture-sensitive flooring, cause imperfections or damage to the slab, or simply allow excessive water vapor into the space above the slab. All interior slabs-on-grade should be underlain by a capillary break drainage layer consisting of a minimum 4-inch thickness of clean gravel or crushed rock that has a fines content (percent passing the No. 200 sieve) of less than 3 percent and a sand content (percent passing the No. 4 sieve) of no more than 10 percent. Pea gravel or crushed rock are typically used for this layer.

As noted by the American Concrete Institute (ACI) in the *Guides for Concrete Floor and Slab Structures*, proper moisture protection is desirable immediately below any on-grade slab that will be covered by tile, wood, carpet, impermeable floor coverings, or any moisture-sensitive equipment or products. ACI recommends a minimum 10-mil thickness vapor retarder for better durability and long term performance than is provided by 6-mil plastic sheeting that has historically been used. A vapor retarder is defined as a material with a permeance of less than 0.3 perms, as determined by ASTM E 96. It is possible that concrete admixtures may meet this specification, although the manufacturers of the admixtures should be consulted. Where vapor retarders are used under slabs, their edges should overlap by at least 6 inches and be sealed with adhesive tape. The sheeting should extend to the foundation walls for maximum vapor protection.

If no potential for vapor passage through the slab is desired, a vapor *barrier* should be used. A vapor barrier, as defined by ACI, is a product with a water transmission rate of 0.01 perms when

tested in accordance with ASTM E 96. Reinforced membranes having sealed overlaps can meet this requirement.

### *DRAINAGE CONSIDERATIONS*

Footing drains should be used where: (1) crawl spaces or basements will be below a structure; (2) a slab is below the outside grade; or, (3) the outside grade does not slope downward from a building. A typical footing drain would consist of 4-inch-diameter perforated pipe surrounded by free-draining gravel that is encircled with a non-woven filter cloth (Mirafi 140N, Supac 4NP, or similar material). At its highest point, a perforated pipe invert should be at least 6 inches below the bottom of a slab floor or the level of a crawl space. The discharge pipe for subsurface drains should be sloped for flow to the outlet point. Roof and surface water drains must not discharge into the foundation drain system. For the best long-term performance, perforated PVC pipe is recommended for all subsurface drains. Clean-outs should be provided for potential future flushing or cleaning of footing drains.

As a minimum, a vapor retarder, as defined in the ***Slabs-On-Grade*** section, should be provided in any crawl space area to limit the transmission of water vapor from the underlying soils. Crawl space grades are sometimes left near the elevation of the bottom of the footings. As a result, an outlet drain is recommended for all crawl spaces to prevent an accumulation of any water that may bypass the footing drains. Providing a few inches of free draining gravel underneath the vapor retarder is also prudent to limit the potential for seepage to build up on top of the vapor retarder.

No groundwater was observed during our field work. If seepage is encountered in an excavation, it should be drained from the site by directing it through drainage ditches, perforated pipe, or French drains, or by pumping it from sumps interconnected by shallow connector trenches at the bottom of the excavation.

The excavation and site should be graded so that surface water is directed off the site and away from the tops of slopes. Water should not be allowed to stand in any area where foundations, slabs, or pavements are to be constructed. Final site grading in areas adjacent to foundations should slope away at least one to 2 percent, except where the area is paved. Surface drains should be provided where necessary to prevent ponding of water behind foundation walls.

## ***LIMITATIONS***

The conclusions and recommendations contained in this report are based on site conditions as they existed at the time of our exploration and assume that the soil and groundwater conditions anticipated are representative of subsurface conditions on the site. If the subsurface conditions encountered during construction are significantly different from those expected, we should be advised at once so that we can review these conditions and reconsider our recommendations where necessary. Such unexpected conditions frequently require making additional expenditures to attain a properly constructed project. It is recommended that the owner consider providing a contingency fund to accommodate such potential extra costs and risks. This is a standard recommendation for all projects.

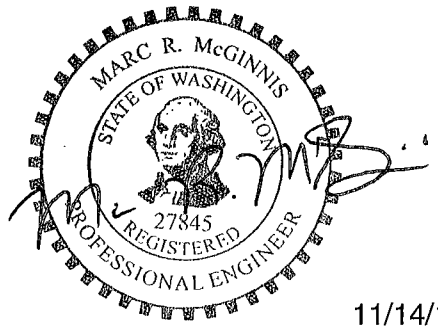
This report has been prepared for the exclusive use of Joseph Riley and his representatives, for specific application to this project and site. Our conclusions and recommendations are professional opinions derived in accordance with current standards of practice within the scope of our services

and within budget and time constraints. No warranty is expressed or implied. The scope of our services does not include services related to construction safety precautions, and our recommendations are not intended to direct the contractor's methods, techniques, sequences, or procedures, except as specifically described in our report for consideration in design. Our services also do not include assessing or minimizing the potential for biological hazards, such as mold, bacteria, mildew and fungi in either the existing or proposed site development.

If you have any questions regarding this report, or if we may be of further service, please do not hesitate to contact us.

Respectfully submitted,

GEOTECH CONSULTANTS, INC.



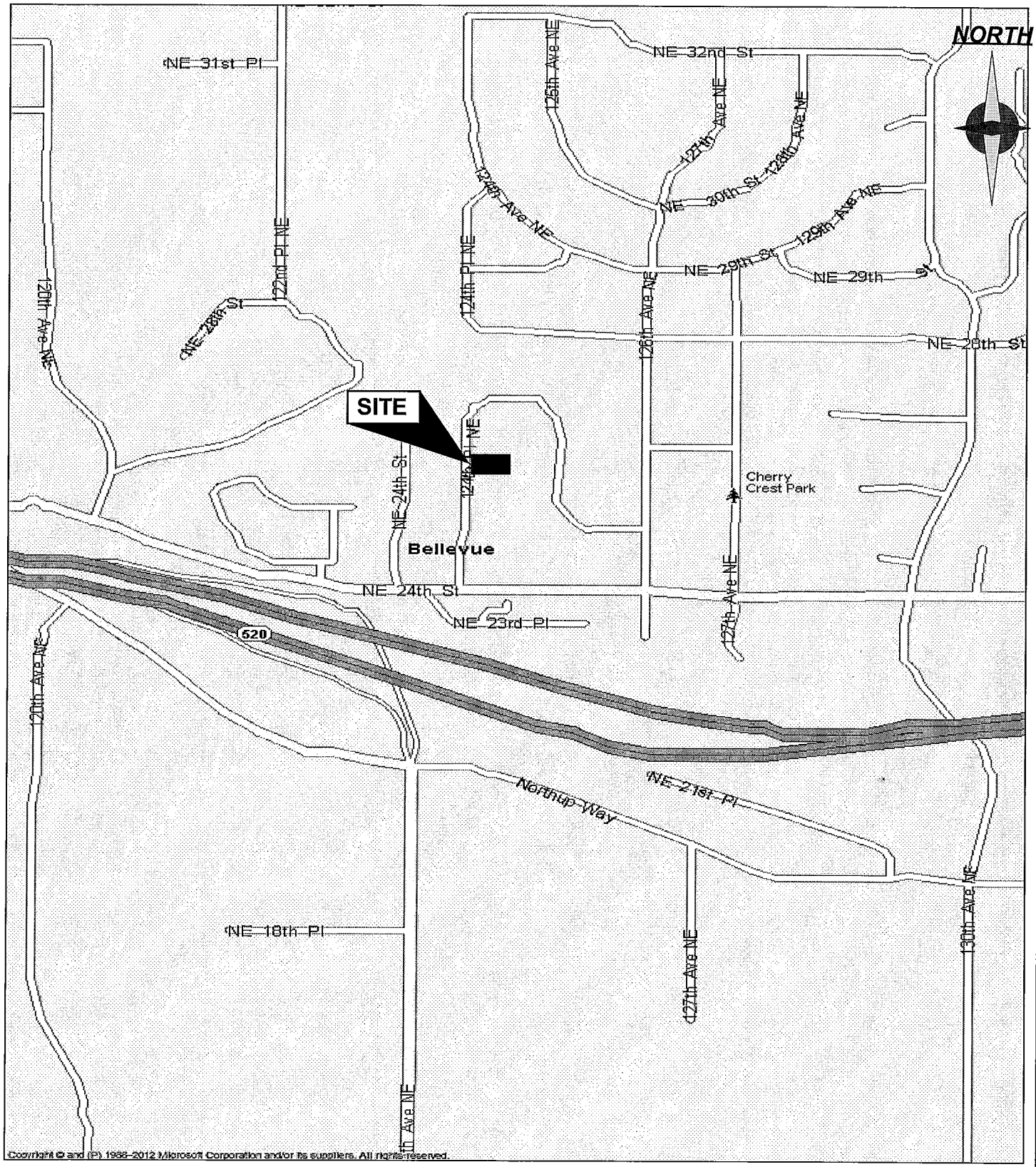

11/14/19
Marc R. McGinnis, P.E.
Principal

Attachments:

- Vicinity Map
- Site Exploration Plan
- Test Hole Logs

cc: **Shugart Wasse Wickwire** – Matt Wasse
*via email: matt@sww-ai.com*

MRM: kg



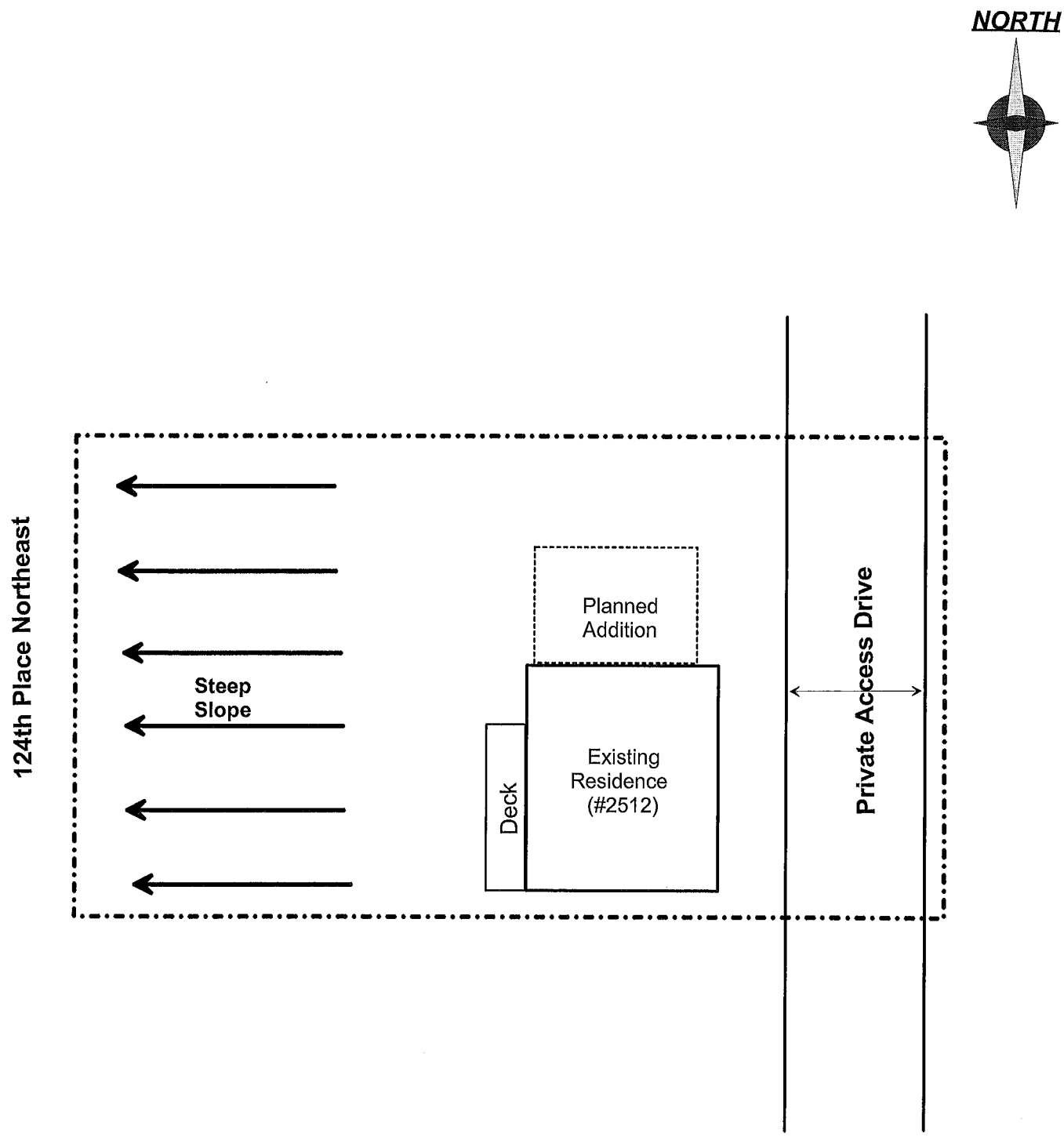

*(Source: Microsoft MapPoint, 2013)*

**GEOTECH**
**CONSULTANTS, INC.**

# VICINITY MAP

2512 - 124th Place N.E.
Bellevue, Washington

| Job No: | Date: | | Plate: |
|---|---|---|---|
| 19423 | Nov. 2019 | | 1 |




**Legend:**

TH-1 Test Hole Location

GEOTECH CONSULTANTS, INC.

# SITE EXPLORATION PLAN

2512 - 124th Place N.E.
Bellevue, Washington

| Job No: | Date: | | Plate: |
|---|---|---|---|
| 19423 | Nov. 2019 | No Scale | 2 |

## TEST HOLE 1

| Depth (feet) | Soil Description |
|---|---|
| 0 – 1.5 | Sod over brown, slightly gravelly, silty SAND, fine-grained, moist, loose (FILL) |
| 1.5 – 2.0 | Gray, slightly gravelly, silty SAND, fine-grained, moist, very dense (Glacial Till) |

Test Hole was terminated at a depth of 2.0 feet on October 29, 2019.
No groundwater seepage was observed in the test hole.

## TEST HOLE 2

| Depth (feet) | Soil Description |
|---|---|
| 0 – 2.5 | Sod over gray to brown, slightly gravelly, silty SAND, fine-grained, moist, loose (FILL) |
| 2.5 – 4.0 | Brown, mottled, slightly gravelly, silty SAND, fine-grained, moist, loose |
| 4.0 – 5.0 | Gray, slightly gravelly, silty SAND, fine-grained, moist, medium-dense<br>-becomes dense at 5.0 feet (Glacial Till) |

Test Hole was terminated at a depth of 5.0 feet on October 29, 2019.
No groundwater seepage was observed in the test hole.

# CRITICAL AREAS REPORT
# AND
# MITIGATION PLAN

**FOR**

## ***RILEY – 124TH PLACE NE***

*Wetland Resources, Inc.* Project #20043


Prepared By
Wetland Resources, Inc.
9505 19th Avenue SE, Suite 106
Everett, WA 98208
(425) 337-3174


Prepared For
Joe Riley
2512 124th Place NE
Bellevue, WA 98005

November 2, 2020

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## 1.0 INTRODUCTION

Wetland Resources, Inc. (WRI) performed a site evaluation on March 12, 2020 to review critical areas on and in the vicinity of King County parcel number 6189200255. The subject site is located at 2512 124th Place Northeast in the city of Bellevue, WA. The Public Land Survey System (PLSS) locator for the subject site is Section 21, Township 25N, Range 05E, W.M. The subject property is located in the Mercer Slough sub-basin within the Cedar/Sammamish watershed, Water Resources Inventory Area (WRIA) 8.

The subject site is located in a residential area in the city of Bellevue and is bordered on the west and east by 124th Place NE. The property is developed with a single-family residence and contains ornamental plantings and maintained lawn adjacent to the house. The western portion of the site is forested. Topography of the site slopes to the west. The eastern portion of the site is relatively flat while the west is encumbered with slopes greater than 40 percent. No wetlands or streams were identified on or in the vicinity of the site.

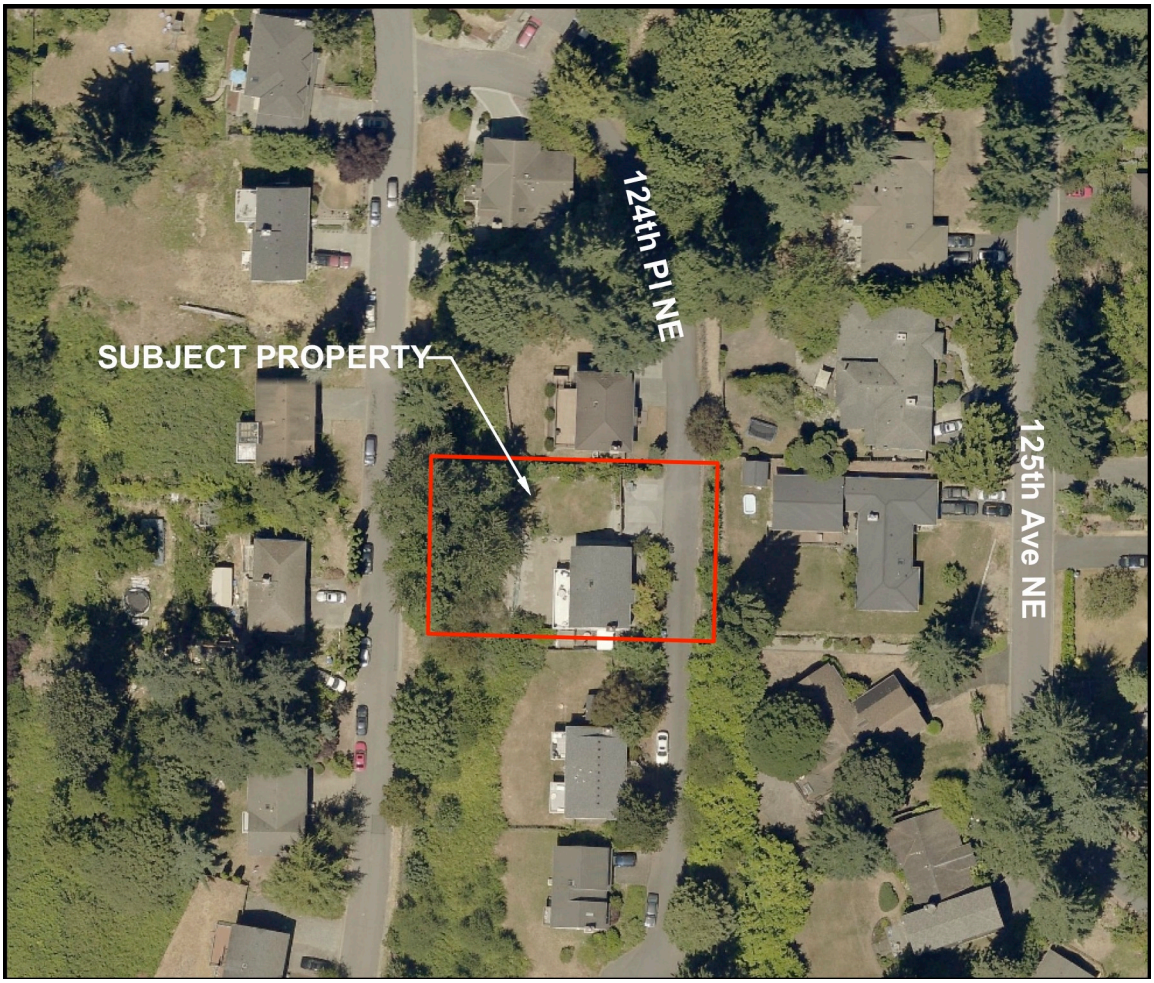


**Figure 1** - Aerial photo of the subject property (not to scale)

The purpose of this report is to provide information on existing conditions of the site as required when a project is requesting a modification of critical areas, buffers, or setbacks. This report

documents presence of wetlands, streams, and steep slopes on and in the vicinity of the subject site. As no wetlands or streams were identified on or near the site, this report is focused on the existence of the aforementioned steep slopes located in the western portion of the site. Please note: Much of the information presented in this report is based on the analysis provided by the project's geotechnical engineer. For information regarding the steep slopes present on the subject site, refer to the *Geotechnical Engineering Study and CALUP Considerations* prepared by Geotech Consultants, Inc. included in Appendix A of this document.

## 2.0 CRITICAL AREA DETERMINATION

One steep slope area was identified on the subject site, as detailed in section 2.2 below. No other critical areas were identified on or in the vicinity of the site during the March 2020 site investigation. No species of local importance or habitats associated with these species were identified on site.

### 2.1 REVIEW OF EXISTING INFORMATION

Prior to conducting an on-site investigation of the project area, public resource information was reviewed to identify the presence of wetlands, streams, and other critical areas within and near the project area. The following information was examined:

- *United States Fish and Wildlife Service (USFWS) National Wetlands Inventory*: This source does not depict any wetlands on-site or in the immediate vicinity.
- *USDA/NRCS Web Soil Survey*: The Web Soil Survey shows the soils on-site are Alderwood gravelly sandy loam (15 to 30 percent slopes) and Alderwood gravelly sandy loam (8 to 15 percent slopes).
- *WDFW SalmonScape Interactive Map*: The SalmonScape map does not identify any streams on or near the project site.
- *WDFW Priority Habitat and Species (PHS) Interactive Map*: No priority habitats or species are mapped on, or immediately adjacent to, the site.
- *King County iMap Interactive Mapping Tool*: The King County iMap does not illustrate any wetlands or streams on, or in the immediate vicinity of, the subject property. However, the entire parcel is identified within an erosion hazard area.
- *Washington State DNR Forest Practices Mapping Tool (FPMT)*: This source does not identify ant streams on or near the site.

### 2.2 STEEP SLOPES

Slopes of 40 percent or more that have a rise of at least 10 feet and exceed 1,000 square feet in area are designated critical areas under Bellevue's Land Use Code (LUC) 20.25H.120.A.2. Steep slopes cover 4,800 square feet of the site. In general, there are steep slopes rising from the western property line, and on the western portion of the lot, west of the planned house expansion site. For

additional information regarding the steep slopes present on the subject site, refer to the *Geotechnical Engineering Study and CALUP Considerations* prepared by Geotech Consultants, Inc. dated November 14, 2019. This report is included in Appendix A of this report. Per LUC 20.25H.120, steep slopes require a 50-foot top of slope buffer and a 75-foot toe of slope structure set back.

## 2.3 HABITAT ASSESSMENT

Habitat associated with species of local importance listed in LUC 20.25H.165.A is designated as critical area under LUC 20.25H.150.B. Therefore, Wetland Resources, Inc. performed an assessment of the property to determine the likelihood of use by these species.

### 2.3.1 Vegetation Description

The majority of the subject property is developed with a single-family residence, parking area, and yard. Vegetation in this developed area consists of maintained lawn grasses, and ornamental trees and shrubs. The western portion of the property is forested along a steep slope. This forested area primarily consists of an open canopy of black cottonwood (*Populus trichocarpa*). The understory is primarily comprised of bitter cherry (*Prunus emarginata*), Himalayan blackberry (*Rubus armeniacus*), English ivy (*Hedera helix*), sword fern (*Polystichum munitum*), herb robert (*Geranium robertianum*), and perwinkle (*Vinca minor*).

### 2.3.2 Species of Local Importance

During our site investigation, multiple bird species were observed on-site. These birds included: Song Sparrow (*Melospiza melodia*), Stellar's Jay (*Cyanocitta stelleri)*, Black-capped Chickadee (*Poecile atricapillus*), and Dark-eyed Junco *(Junco hyemalis)*. Based on the available habitat, other avian species that are likely to utilize the site include American Crow (*Corvus brachyrhyncos*), American Robin (*Turdis migratorius*), and Common Starling (Sturnus vulgaris). Mammalian species that may utilize this site include squirrels (*Sciurus spp.*), shrews (*Sorex* spp.), raccoons (*Procyon lotor*), skunks (*Mephitis* spp.), deer mice (*Peromyscus maniculatus*), and Virginia opossums (*Didelphis virginiana*). This list is not intended to be all-inclusive, and may omit species that currently utilize or could utilize the site.

No priority species or habitats are identified by the WDFW PHS online mapping application, or any other commonly available public resource, as being present on the subject property.

The wildlife species detected on-site, as well as those predicted to occur on-site are not on the City of Bellevue's Species of Local Importance list (LUC 20.25H.150(A)). The property lacks special habitat features such as large snags, large nesting trees, ponds, or streams. The subject property is located within a dense suburban residential development area which limits it's use as a wildlife corridor. Additionally, the subject property's close proximity to State Route 520 and Interstate 405, further restricts it usability as a protective wildlife corridor, by restricting wildlife movement and increasing noise disturbance to the subject property. The property is approximately 3.72-miles from Lake Sammamish and 1.89-miles from Lake Washington, and is no more likely to provide potential habitat to species such as Osprey than most other residential properties within that range.

### 2.3.3 Potential Habitat Impact

No direct or indirect impacts are proposed to any habitats associated with species of local importance. The proposed development will enhance a portion of the existing vegetation on the

west side of the subject site. The proposed residence and driveway will primarily impact lawn, gravel, and rockeries. In addition, the removal of invasive species and installation of additional native plants will add to the quality of habitat provided on the site.

## 3.0 PROPOSED DEVELOPMENT

The property owner proposes to build a two-story addition along the northern portion of the existing single family residence (SFR). The footprint of the addition and access stairway is 620 square feet and will be approximately 16 feet (at closest point) from the top of the steep slope to the west. The project area is located completely within the top-of-slope buffer.

The proposed addition area currently consists of maintained lawn and a stone walkway. The subject property is almost entirely encumbered by the 50-foot top of slope buffer. A strict adherence to the provisions of the Bellevue Land Use Code would preclude any development on this parcel. Thus, the applicant is requesting a modification to the on-site steep slope buffer. No impacts to the steep slope areas are proposed.

The proposed addition has been designed according to the recommendations in the geotechnical engineer, as found in the *Geotechnical Engineering Study and CALUP Considerations* included in Appendix A. By implementing the design recommendations and construction techniques of the geotechnical engineer, the proposed project will preserve the integrity of the on-site steep slope.

### 3.1 PROPOSED MITIGATION

Mitigation for the modification of the steep slope buffer will be provided through native vegetation enhancement between the proposed project and steep slope area to the west. A Buffer Mitigation Plan is provided in section 6.0 of this report.

## 4.0 PROPOSED MODIFICATION TO LUC

Almost the entire parcel is encumbered by steep slopes and associated buffer. Strict adherence to the provisions of the Bellevue Land Use Code would preclude any new development on this parcel. Any new development on this parcel requires a modification of critical areas or their buffers/setbacks.

The purpose of this critical area study is to modify the steep slope buffer identified in LUC 20.25H.120. Specifically, the applicant is proposing to infringe upon the steep slope buffer in the following manner:

- Reduce top-of-slope buffer to 16 feet at its narrowest point for the proposed addition.

## 4.1 ADDITIONAL PROVISIONS REQUIRED FOR LANDSLIDE HAZARDS AND STEEP SLOPES

### 4.1.1 LUC 20.25H.125 Performance Standards – Landslide Hazards and Steep Slopes

The performance standards outlined in LUC 20.25H.125 are discussed on pages 3 and 4 of the *Geotechnical Engineering Study and CALUP Considerations* report included in Appendix A of this report. Regarding LUC 20.25H.125.J, a mitigation plan is provided in Section 6 of this report. The proposed development includes 620 square feet of new permanent disturbance within the on-site steep slope buffer. The applicant is proposing to enhance 620 square feet of the steep slope and top of slope buffer for a 1:1 ratio of mitigation to impacts. Please refer to Section 6 below for further details of the mitigation

### 4.1.2 LUC 20.25H.135 Mitigation and Monitoring Additional Provisions

Detailed information regarding temporary erosion and sediment control as well as stormwater management will be submitted with the building permit application.

### 4.1.3 LUC 20.25H.140 Critical Areas Report Additional Provisions and LUC 20.25H.145 Approval of Modifications

An assessment of the geological characteristics, potential threats to adjacent properties, and the safety of the construction design is presented in the Geotechnical Engineering Study and Geotechnical Evaluation letter included in Appendix A of this report. The geotechnical engineer has reviewed the residence location, design, and construction methods.

### 4.1.4 LUC 20.25H.145 Approval of Modifications

The performance standards outlined in LUC 20.25H.145 are discussed on page 4 of the attached *Geotechnical Engineering Study and CALUP Considerations*, included in Appendix A of this report. Regarding LUC 20.25H.145.G, a discussion of existing habitat conditions and analysis of development impact is provided in Section 2.3 Habitat Assessment of this report. The proposed residence will impact an area that is currently maintained lawn and a stone walkway The modification of the top-of-slope buffer will not significantly impact habitat associated with species of local importance.

## 4.2 LUC 20.25H.255 CRITICAL AREA REPORT – DECISION CRITERIA

Text in italics below is from LUC 20.45H.255, with WRI responses in plain text.

*A. General*

*Except for the proposal described in subsection B of this section, the Director may approve, or approve with modifications, the proposed modification where the applicant demonstrates:*

1. *The modifications and performance standards included in the proposal lead to levels of protection of critical area functions and values at least as protective as application of the regulations and standards of this code;*

The proposal will enhance an area of steep slope and top of slope buffer at a 1:1 ratio for the proposed impacts. By installing native trees, shrubs, and groundcover along the steep slope and

buffer, soils will be stabilized to a greater extent than what is provided in the current situation. The functions and values provided by the buffer for wildlife will increase due to the increase in native plant species diversity and structure. Additionally, the expansion will be anchored in dense glacial till and will therefore not increase the risk of erosion.

2. *Adequate resources to ensure completion of any required mitigation and monitoring efforts;*

The applicant will provide a surety at the time of the building permit application submittal.

3. *The modifications and performance standards included in the proposal are not detrimental to the functions and values of critical areas and critical area buffers off-site; and*

As previously mentioned, the proposal will increase the value of wildlife functions provided by the buffer and continue to moderate stormwater runoff. The proposed development will not detrimentally affect the slope itself. No other critical areas or buffers are located on or in the vicinity of the site.

4. *The resulting development is compatible with other uses and development in the same land use district.*

The subject site is in single-family residential neighborhood. The proposed development is an expansion to a single-family home, which is compatible with the land use district.

*B. Decision Criteria – Proposals to Reduce Regulated Critical Area Buffer.*

*The Director may approve, or approve with modifications, a proposal to reduce the regulated critical area buffer on a site where the applicant demonstrates:*

1. *The proposal includes plans for restoration of degraded critical area or critical area buffer functions which demonstrate a net gain in overall critical area or critical area buffer functions;*

The proposed development will primarily be located in areas that have been previously disturbed by grading associated with the existing lawn. The proposed addition to the house will be anchored on dense glacial till. This proposed development will not degrade the current functionality of the buffers as they relate to slope stability and erosion protection. Dense native vegetation will be installed on the slope and within the top of slope buffer to mitigate for the proposed impacts. The vegetation will increase the stability of the top of the slope. By enhancing an area of steep slope and top of slope buffer, the applicant is ensuring that the functions provided by the buffer will be maintained following the development.

2. *The proposal includes plans for restoration of degraded critical area or critical area buffer functions which demonstrate a net gain in the most important critical area or critical area buffer functions to the ecosystem in which they exist;*

The area of top-of-slope buffer proposed for reduction is currently maintained lawn and stone walkway. Functions provided by this area in the existing condition are limited. The lawn area allows for very minor amount sediment/pollutant filtration and a low level of stormwater absorption. The lawn area provides open space for wildlife to use, but lacks native food sources

and opportunity for refuge. The proposed enhancement will allow for greater sediment/pollutant filtration and increased stormwater absorption than the lawn currently provides. The enhancement plantings will also provide an increased amount of native food sources and areas for refuge on the site, increasing the value of wildlife functions on-site. Furthermore, the plantings will provide greater stabilization to the slope than is provided by maintained lawn.

3. *The proposal includes a net gain in stormwater quality function by the critical area buffer or by elements of the development proposal outside of the reduced regulated critical area buffer;*

The proposed enhancement plantings between the slope and the proposed expansion will allow for greater sediment/pollutant filtration and increased stormwater absorption than the lawn currently provides.

4. *Adequate resources to ensure completion of any required restoration, mitigation and monitoring efforts;*

The applicant will provide a surety at the time of the building permit re-submittal.

5. *The modifications and performance standards included in the proposal are not detrimental to the functions and values of critical area and critical area buffers off-site; and*

No other critical areas are located on or in the vicinity of the site. Only the previously mentioned steep slope areas exist.

6. *The resulting development is compatible with other uses and development in the same land use district.*

The subject site is in single-family residential neighborhood. The proposed development is an expansion to a single-family home, which is compatible with the land use district.

## 5.0 LUC 20.30P.140 DECISION CRITERIA

Text in italics below is from LUC 20.30P.140, with WRI responses in plain text.

*The Director may approve or approve with modifications an application for a Critical Areas Land Use Permit if:*

*A. The proposal obtains all other permits required by the Land Use Code; and*

All other necessary permits will be obtained.

*B. The proposal utilizes to the maximum extent possible the best available construction, design and development techniques which result in the least impact on the critical area and critical area buffer; and*

No impacts to Critical Areas are proposed as part of the development. The expansion will be anchored directly to the dense glacial till underlaying the northern portion of the site. This technique will result in the least impact possible for the scope of this proposal. The proposed enhancement plan will result in a lift in functions provided by the slope and associated buffer.

*C. The proposal incorporates the performance standards of Part 20.25H LUC to the maximum extent applicable; and*

A discussion of performance standards for landslide hazards and steep slopes in LUC 20.25H.125 is provided in the geotechnical engineering study in Appendix A and in section 6of this report. The proposed development incorporates these performance standards.

*D. The proposal will be served by adequate public facilities including streets, fire protection, and utilities; and*

The subject site is accessible from an existing private road off of 124th Place NE and is already served by public facilities including fire protection and utilities.

*E. The proposal includes a mitigation or restoration plan consistent with the requirements of LUC 20.25H.210; except that a proposal to modify or remove vegetation pursuant to an approved Vegetation Management Plan under LUC 20.25H.055.C.3.i shall not require a mitigation or restoration plan; and*

A mitigation plan that includes vegetation restoration and enhancement is provided below in section 6 of this report. This mitigation plan is consistent with LUC 20.25H.210.

*F. The proposal complies with other applicable requirements of this code.*

The proposal complies with the applicable requirements of code and will obtain all other necessary permits.

## 6.0 MITIGATION PLAN

The proposed SFR addition will impact 620 square feet of top of slope buffer area. In order to compensate for these impacts, the applicant proposes to enhance 620 square feet of steep slope and top of slope buffer area between the proposed addition and steep slopes to the west.

**Table 1** - Steep Slope Buffer Impacts and Mitigation Summary

| **Impact Area** (square feet) | **Mitigation Type** | **Mitigation Area** (square feet) | **Mitigation Ratio** |
|---|---|---|---|
| 620 | Enhancement | 620 | 1:1 |

### 6.1 MITIGATION SEQUENCING

The City of Bellevue requires that all reasonable efforts be taken to avoid and minimize impacts to critical areas and buffers. If impacts do occur, they must be compensated in the following order of preference (LUC 20.25H.215):

*A) Avoiding the impact altogether by not taking a certain action or parts of an action;*

*B) Minimizing impacts by limiting the degree or magnitude of the action and its implementation, by using appropriate technology, or by taking affirmative steps, such as project redesign, relocation, or timing, to avoid or reduce impacts;*

*C) Performing the following types of mitigation (listed in order of preference):*

*1) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;*

*2) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; or*

*3) Compensating for the impact by replacing, enhancing, or providing substitute resources or environments;*

*D) Monitoring the hazard or other required mitigation and taking remedial action when necessary.*

The applicant is avoiding impacts to all on-site critical areas. However, complete avoidance of the steep slope buffer is not feasible due to the encumbrance of buffer over the majority of the property.

Impacts to the buffer are minimized to the extent possible by siting the addition over existing disturbed/maintained area that consists of maintained lawn and stone walkway. Furthermore, the addition is proposed along the north side of the lot, away from the western steep slopes, and does not extend further than the existing SFR to the west. No impacts to native vegetation will occur, and proper TESC procedures and best management practices will be used during construction.

Buffer impacts will be mitigated through enhancement of the sleep slope and top of slope buffer between the proposed project and western steep slope. The location of the mitigation area was selected to further protect the western steep slope area from residential uses. Mitigation measures will enhance both the steep slope and buffer functions provided to the steep slope and will also benefit wildlife by creating habitat. The western steep slope and buffer area will see a net gain in functions and values.

All mitigation areas will be monitored for a period of five years from the point of installation per the approved mitigation and monitoring plan. Contingency plans will be followed if deemed necessary by the City or consulting biologist. The monitoring period will end when the definition of success is met. Please refer to Section 7.3 below for details of the monitoring program.

## 6.2 ENHANCEMENT PLAN

The proposed enhancement area is located along the northern portion of on-site steep slopes and top of slope buffer, just west of the proposed project. The enhancement area currently consists of maintained lawn, Himalayan blackberry (*Rubus armeniacus*), and bamboo.

The applicant proposes to remove the maintained lawn and invasive species from the enhancement area, and install native plant species in their place. Enhancement measures will result in improved slope stabilization and erosion control functions, higher plant cover and diversity, and potential wildlife habitat. A net gain in steep slope buffer functions will be obtained through the proposed mitigation plan.

### 6.2.1 Site Preparation

Prior to starting work, a silt fence (or similar erosion control device) shall be installed on the downslope edge of the mitigation area and left in place until native plant installation is complete

and soils are stabilized. Before native plant installation, the maintained lawn and invasive species will be removed from the enhancement area. All invasive species shall be removed and disposed of off-site. After non-native plant removal, a topsoil or compost soil amendment may be tilled into native soils as necessary and recommended by the contracted landscaper.

### 6.2.2 Buffer Enhancement Planting Plan

The proposed planting plan includes plant species recommended in the Geologically Hazardous Areas section of the City of Bellevue's Critical Areas Handbook. Maintained lawn, invasive species, and bare soils in the enhancement area will be replaced with a diverse palette of native shrubs and groundcover. Five shrub species and two groundcover species are proposed as shown in the table below. After planting, the entire enhancement area shall be stabilized with woodchip mulch (see *Planting Notes* for more detail). The attached *Critical Areas Report and Buffer Mitigation Plan Map* (Appendix B) displays the proposed plant schedule and layout.

**Steep Slope Buffer Enhancement Planting Area (620 square feet)**

| *Common Name* | *Latin Name* | *Size* | *Spacing* | *Quantity* |
|---|---|---|---|---|
| Red elderberry | *Sambucus racemosa* | 1 gal. | 4.5' | 6 |
| Beaked hazelnut | *Corylus cornuta* | 1 gal. | 4.5' | 6 |
| Oceanspray | *Holodiscus discolor* | 1 gal. | 4.5' | 6 |
| Thimbleberry | *Rubus parviflorus* | 1 gal. | 4.5' | 6 |
| Snowberry | *Symphoricarpos albus* | 1 gal. | 4.5' | 6 |
| Dull Oregon-grape | *Mahonia nervosa* | 1 gal | 3' | 19 |
| Western sword fern | *Polystichum munitum* | 1 gal. | 3' | 19 |

## 7.0 MITIGATION PLANTING NOTES

Plant between late fall and early spring and obtain all plants from a reputable nursery. Care and handling of all plant materials is extremely important to the overall success of the project. The origin of all plant materials specified in this plan shall be native plants, nursery grown in the Puget Sound region of Washington. Some species substitution may be allowed with agreement of the contracted ecologist.

*Pre-Planting Meeting*

Prior to control of invasive species or installation of mitigation plantings, a site meeting between the contracted landscaper and the consulting ecologist may occur to resolve any questions that may arise. During this meeting a discussion regarding plant spacing and proper locations of plant species will occur, as well as an inspection of the plants prior to planting. Minor adjustments to the original design may be required prior to and during construction.

*Handling*

Plants shall be handled so as to avoid all damage, including: breaking, bruising, root damage, sunburn, drying, freezing or other injury. Plants must be covered during transport. Plants shall not be bound with wire or rope in a manner that could damage branches. Protect plant roots with shade and wet soil in the time period between delivery and installation. Do not lift container stock by trunks, stems, or tops. Do not remove from containers until ready to plant. Water all plants as

necessary to keep moisture levels appropriate to the species horticultural requirements. Plants shall not be allowed to dry out. All plants shall be watered thoroughly immediately upon installation. Soak all containerized plants thoroughly prior to installation.

*Storage*
Plants stored by the Permittee for longer than one month prior to planting shall be planted in nursery rows and treated in a manner suitable to those species' horticultural requirements. Plants must be re-inspected by the landscape architect prior to installation.

*Damaged plants*
Damaged, dried out, or otherwise mishandled plants will be rejected at installation inspection. All rejected plants shall be immediately removed from the site, and properly replaced.

*Plant Names*
Plant names shall comply with those generally accepted in the native plant nursery trade. Any question regarding plant species or variety shall be referred to the landscape architect or consulting ecologist. All plant materials shall be true to species and variety and legibly tagged.

*Quality and condition*
Plants shall be normal in pattern of growth, healthy, well-branched, vigorous, with well-developed root systems, and free of pests and diseases. Damaged, diseased, pest-infested, scraped, bruised, dried out, burned, broken, or defective plants will be rejected. Plants with pruning wounds over 1" in diameter will be rejected.

*Roots*
All plants shall be balled and burlapped (B&B) or containerized, unless explicitly authorized by the landscape architect and/or consulting ecologist. Rootbound plants or B&B plants with damaged, cracked, or loose rootballs (major damage) will be rejected. Immediately before installation, plants with minor root damage must be root-pruned. Matted or circling roots of containerized plantings must be pruned or straightened and the sides of the root ball must be roughened from top to bottom to a depth of at least an inch.

*Sizes*
Plant sizes shall be the size indicated in the plant schedule in approved plans, unless approved by the landscape architect or consulting ecologist. Larger stock may be acceptable provided that it has not been cut back to the size specified, and that the root ball is proportionate to the size of the plant. Smaller stock may be acceptable, and preferable under some circumstances, based on site-specific conditions. Measurements, caliper, branching, and balling and burlapping shall conform to the American Standard of Nursery Stock by the American Association of Nurserymen (latest edition).

*Form*
Evergreen trees shall have single trunks and symmetrical, well-developed form. Deciduous trees shall be single trunked unless specified as multi-stem in the plant schedule. Shrubs shall have multiple stems and be well-branched.

*Timing of Planting*
Unless otherwise approved by the landscape designer/consulting ecologist, all planting shall occur between October 1 and March 1. Overall, the earlier the plants go into the ground during the dormant period, the more time they have to adapt to the site and extend their root systems before the water demands of summer.

*Weeding*
Non-native, invasive vegetation in the mitigation area will be hand-weeded from around all installed plants at the time of installation and on a routine basis throughout the monitoring period. No chemical control of vegetation on any portion of the site is recommended without prior approval from the City and consulting ecologist.

*Site conditions*
The landscaping contractor shall immediately notify the landscape designer and/or consulting ecologist of drainage or soil conditions likely to be detrimental to the growth or survival of plants. Planting operations shall not be conducted under the following conditions: freezing weather, when the ground is frozen, excessively wet weather, excessively windy weather, or in excessive heat.

*Planting Pits*
Planting pits shall be circular or square with vertical sides, and shall be at least 12" wider in diameter than the root ball of the plant. Break up the sides of the pit in compacted soils. Set plants upright in pits. All burlap shall be removed from the planting pit/rootball. Backfill of native soils shall be worked back into holes such that air pockets are removed without adversely compacting soils.

*Fertilizer*
Slow release fertilizer may be used if pre-approved by the consulting ecologist. Fertilizers shall be applied only at the base of plantings underneath the required covering of mulch (that does not make contact with stems of the plants). No fertilizers shall be placed within planting holes.

*Support Staking*
Most shrubs and many trees DO NOT require any staking. If the plant can stand alone without staking in a moderate wind, do not use a stake. If the plant needs support, then strapping or webbing should be used as low as possible on the trunk to loosely brace the tree with two stakes. Do not brace the tree tightly or too high on the trunk. If the tree is unable to sway, it will further lose the ability to support itself. Do not use wire in a rubber hose for strapping as it exerts too much pressure on the bark. As soon as supporting the plant becomes unnecessary, remove the stakes. All stakes must be removed within two (2) years of installation.

*Arrangement and Spacing*
The plants shall be arranged in a pattern with the appropriate numbers, sizes, species, and distribution that are required in accordance with the approved plans. The actual placement of individual plants shall mimic natural, asymmetric vegetation patterns found on similar undisturbed sites in the area. Spacing of the plantings may be adjusted to maintain existing vegetation with the agreement of the landscape designer and/or consulting ecologist.

*Compost*
If native soils appear unsuitable for the long term survival of installed plant material, organic compost will be added to the planting area.

*Mulching*
Mulch (woodchip/arborist) shall be applied to the entire enhancement area after plant installation. Mulch shall be no less than 3 inches deep, and shall be kept 2 inches away from the trunks/stems of installed plants to prevent damage.

*Erosion and Sediment Control Plan*
A silt fence (or similar erosion control device) shall be installed at the downslope edge of the cleared area upslope of the culvert and left in place until native plant installation is complete and soils are stabilized.

## 7.2 MITIGATION GOALS AND OBJECTIVES

The goal of this mitigation plan is to improve the functions of the steep slope and buffer, and further protect the on-site steep slope from on-going residential uses. The specific goals of the plan are to increase vegetative species diversity and cover, increase browsing and cover opportunities for wildlife, increase soil stabilization capacity, limit erosion, improve the bio-filtration capacity of the buffer, and decrease invasive and non-native plant cover without harming steep slope areas.

To achieve the goals previously stated, non-native plants will be carefully removed from the steep slope and buffer, and diverse native vegetation will be installed. Installed vegetation will be of high value to wildlife, thicket-forming, form wide-spreading and complex root structure, and will densely cover the ground surface.

Over time, this mitigation project is expected to achieve a net-gain in functions to wildlife, water quality, hydrology, erosion capacity, and soil stability within the buffer area, and is expected to better protect the on-site steep slope.

## 7.3 PROJECT MONITORING PROGRAM

Monitoring shall be conducted annually for five years in accordance with the approved Buffer Mitigation Plan.

Requirements for monitoring project:

1. Initial compliance report/as-built map
2. Semi-annual site inspections (once in the spring, once in the fall) for five years
3. Annual reports including final report (one report submitted in the fall of each monitored year)

*Purpose for Monitoring*
The purpose for monitoring shall be to evaluate the project's success. Success will be determined if monitoring shows at the end of five years that the definitions of success stated below are being met. Access shall be granted to the planting area for inspection and maintenance to the contracted

landscaper and/or ecologist and the City during the monitoring period or until the project is evaluated as successful.

*Vegetation Monitoring Methodology*
Due to the small size of the buffer enhancement areas, a total plant count will be conducted in lieu of transect or sampling points. Monitoring of vegetation should occur annually between May 15 and September 30 (prior to leaf drop), unless otherwise specified.

The following data will be recorded for the buffer enhancement areas:

- Species present
- Aerial cover by native and non-native species
- Quantity of dead plants
- General observations

### 7.3.2 Photo points

Permanent photo points will be established within the mitigation area. Photographs will be taken from these points to visually record condition of the enhancement area. Photos shall be taken annually between May 15 and September 30 (prior to leaf drop), unless otherwise specified. A minimum of two photo points will be established in the mitigation area.

### 7.3.3 Monitoring Reports

Monitoring reports shall be submitted by December 31 of each year during the monitoring period. As applicable, monitoring reports must include descriptions/data for:

(1) Site plan and vicinity map;
(2) Historic description of project, including date of installation, current year of monitoring, restatement of planting/restoration goals, and performance standards;
(3) Plant survival, vigor, and areal coverage for every plant stratum (sampling point data), and explanation of monitoring methodology in the context of assessing performance standards;
(4) Slope condition and site stability;
(5) Overall buffer conditions, e.g., surrounding land use, use by humans and/or wildlife;
(6) Observed wildlife, including amphibian, avian, and others;
(7) Assessment of invasive biota and recommendations for management;
(8) Color photographs taken from permanent photo points that shall be depicted on the monitoring report map.

### 7.3.4 Project Success and Compliance

Upon installation and completion of the approved mitigation plan, an inspection by a qualified ecologist and/or City will be made to determine plan compliance. A compliance report will be supplied to the City of Bellevue within 30 days of the completion of planting. The Applicant or consulting ecologist/landscape designer will perform condition monitoring of the plantings before October of each year for five years. A written report describing the monitoring results will be submitted to the City after each site inspection of each monitored year. Final inspection will occur

five years after completion of this project, and a report on overall project its success will be prepared.

*Performance Standards*
Project success will be measured by native species survival and richness, and areal cover of native and invasive plants. The mitigation area must achieve the following Performance Standards to be considered successful:

| | **Year 1** | **Year 3** | **Year5** |
|---|---|---|---|
| **Installed Plant Survival** | 100% | 90% | 80% |
| **Invasive/Non-native species cover** | <5% | <5% | <5% |

### 7.4 PERFORMANCE BOND

The City of Bellevue may require a performance bond or maintenance assurance device if it is determined to be necessary. The City will determine the type and amount of assurance device required. The performance or maintenance assurance device amount is typically determined from the estimated cost of work. An estimate of the cost of project installation is provided below.

| | |
|---|---|
| Cost of Plants and Labor | $782.00 |
| 1-gal pots ($11.50 per plant)= 68 | |
| Cost of Silt Fence ($1.60/linear foot) | $96.00 |
| Cost of Mulch ($3.25/sq.yd.) | $221.00 |
| TOTAL ESTIMATED COST | $1,099.00 |

### 7.5 MAINTENANCE PROGRAM

This mitigation project will require periodic maintenance to replace mortality of planted species and control invasive, non-native plant species, and other undesirable competing species. The mitigation planting areas will be maintained (at a minimum) in spring and late summer of each year for the five-year monitoring period. Maintenance may include, but will not be limited to, removal of competing species and non-native vegetation (by hand if necessary), irrigation, replacement of dead plants, and/or the replacement of mulch during each maintenance period. The Applicant is responsible for ensuring maintenance occurs in all monitoring years.

*Duration and Extent*
In order to achieve performance standards, the Permittee shall have the planting area maintained for the duration of the five-year monitoring period. Maintenance will include: watering, weeding around the base of installed plants, pruning, replacement, re-staking, removal of all classes of noxious weeds (see Washington State Noxious Weeds List), and any other measures needed to insure plant survival.

*Survival*
The Permittee shall be responsible for the health of 100 percent of all newly installed plants for *one growing season* after installation has been accepted by the City. A growing season for these purposes is defined as occurring from spring to spring (March 15 to March 15 of the following year). For

fall installation (often required), the growing season will begin the following spring. The Permittee shall replace any plants that are failing, weak, defective in manner of growth, or dead during this growing season.

*Installation Timing for Replacement Plants*
Replacement plants shall be installed between October 1 and March 1, unless otherwise determined by the consulting ecologist and/or City staff.

*Standards for Replacement Plants*
Replacement plants shall meet the same standards for size and type as those specified for the original installation unless otherwise directed by the landscape designer, consulting ecologist, and/or City staff.

*Mulch*
All plantings will have wood chip mulch reapplied at their bases for at least the first two growing years of the monitoring period. Plants shall receive no less than 3 inches of wood chips (a.k.a. arborist mulch). Mulch shall be kept well away (at least 2 inches) from the trunks and stems of woody plants.

*Herbicides/Pesticides and Fertilizer*
Chemical control of invasive, non-native species, if necessary, shall be applied only after approval by the City of Bellevue or consulting ecologist. Herbicide shall be applied by a licensed applicator following all label instructions. Chemical control and fertilization within the mitigation areas will only be performed if deemed necessary.

*Watering/Irrigation*
Water should be provided during the dry season (~July 1 through September 15) to insure plant survival and establishment. Water should be applied at a rate of one inch of water twice per week during the dry season. The landscaping contractor and/or property owners will determine if additional watering is necessary. Due to the steep slopes on the site, hand watering or a drip system, that waters for short periods at a time, shall be used to prevent any erosion or slope stability issues.

*Pruning of Existing Trees*
In the future, if it is necessary to prune the existing trees away from 145th Place SE, individual branches will be removed, leaving the tree(s) intact. Should the need to remove a tree arise, the property owners will comply with the current City of Bellevue regulations for vegetation removal in critical areas and/or buffers at that time.

## 7.6 CONTINGENCY PLAN

If, during any of the annual inspections, performance standards are not being met for species survival, additional plants of the same species will be added to the mitigation area. If invasive, non-native species exceed 5 percent cover (as measured by areal cover), manual control shall occur. If any of these situations persist to the next inspection, a meeting with the landscape

designer/consulting ecologist and the Permittee will be held to decide upon contingency plans. Elements of a contingency plan may include, but will not be limited to: more aggressive weed control, mulching, replanting with larger plant material, species substitution, fertilization, soil amendments, and/or irrigation.

## 8.0 USE OF THIS REPORT

This Critical Areas Report and Mitigation Plan is supplied to Joe Riley as a means of determining on-site critical area conditions, as required by the City of Bellevue during the permitting process. This report is based largely on readily observable conditions and, to a lesser extent, on readily ascertainable conditions. No attempt has been made to determine hidden or concealed conditions.

The laws applicable to wetlands are subject to varying interpretations and may be changed at any time by the courts or legislative bodies. This report is intended to provide information deemed relevant in the applicant's attempt to comply with the laws now in effect.

The work for this report has conformed to the standard of care employed by wetland ecologists. No other representation or warranty is made concerning the work or this report, and any implied representation or warranty is disclaimed.

*Wetland Resources, Inc.*

Alia Richardson
*Associate Ecologist & Wildlife Biologist*

## 9.0 REFERENCES


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# APPENDIX A

# GEOTECHNICAL ENGINEERING STUDY

GEOTECH
CONSULTANTS, INC.

2401 10th Ave E
Seattle, Washington 98102
(425) 747-5618

November 14, 2019

JN 19423

Joseph Riley
2512 – 124th Place Northeast
Bellevue, Washington 98005

Subject: **Geotechnical Engineering Study and CALUP Considerations**
Proposed Residential Addition
Riley Residence
2512 – 124th Place Northeast
Bellevue, Washington

Dear Mr. and Mrs. Hsu:

This report presents our geotechnical findings and conclusions, including Critical Area Land Use Permit (CALUP) considerations for the proposed addition to your residence. The scope of our services included visiting the site on two occasions to observe the existing conditions and to conduct subsurface explorations, as well as review of published geologic maps for the site vicinity.

Based on the information provided by Shugart Wasse Wickwire, and our discussions with you, we expect that a two-story addition will be constructed on the north side of your existing home. This addition will be built in an existing flat yard area that extends from your residence to near the northern property line of your lot. Both floor levels of the addition will match those of your existing home. As a result, the lower, main floor will be a few feet above the current grade of the yard. No deep excavation, such as for basement spaces, is expected. The western side of the new construction is anticipated to extend no further toward the west than the existing house. This will provide a buffer of at least 15 feet between the new construction and the steep slope located on the west side of the lot. No disturbance of the steep slope is expected.

If the scope of the project changes from what we have described above, we should be provided with revised plans in order to determine if modifications to the recommendations and conclusions of this report are warranted.

## ***SITE CONDITIONS***

The subject property is a rectangular-shaped lot bounded on the west by 124th Place Northeast. Developed single-family lots are located to the north, east, and south of your property. A paved private access drive extending to the several homes south of yours extends through the eastern side of your lot.

Your home is a two-story, mid-entry structure located on the southeastern portion of the lot. There is no garage, with parking available on the private driveway and in a paved area located to the northeast of the house. The lower floor of the house appears to have a slab-on-grade floor. The house is surrounded by yard and landscaping, with walkways and front entry steps between the house and the eastern private driveway. There is a small deck extending westward from the house.

The area of the planned development to the north of the house is grass yard that is essentially flat. Along the north and east sides of the yard is a 2-foot-tall modular block landscape wall that was likely built in front of a short cut to create the flat yard space when the property was originally developed. Between this landscape wall and the neighboring northern lot is a landscaped bed containing some small trees and ornamental plants.

The western approximately one-half of your lot is taken up by a steep, west-facing slope that extends to a gently-sloped area along the eastern edge of the 124th Place Northeast pavement. This steep slope is overgrown with blackberry vines, weeds and other underbrush. There are several large Cottonwood trees located on the lower portion of the slope. Several of these trees appear to be overhanging 124th Place Northeast, and may be located in the public right-of-way. The steep portion of the slope has a height of approximately 20 feet and a measured inclination of 60 to 70 percent. The lower portion of the slope has been oversteepened on part of your lot and the neighboring properties by excavation for 124th Place Northeast. Several of these oversteepened areas have been protected with rockeries of varying heights. We saw no indications of recent instability on the slope within your property or the neighboring lots.

Published geologic maps indicate that your site and surrounding properties are underlain by glacial till, a glacially-compressed mixture of gravel, silt, and fine-grained sand. Glacial till soils are highly cemented, and have high internal strengths. During our second visit to the site on October 29, 2019 we completed two test holes within the northern yard area, in the planned footprint of the addition. These test holes were conducted near the western and eastern sides of the expected addition. The approximate locations of thee test holes are shown on the attached Site Exploration Plan. Logs of the test holes are also attached. The eastern test hole exposed loose, silty sand fill extending to a depth of approximately 1.5 feet below the existing grade. This fill was underlain by gray, slightly gravelly, silty sand that was dense. This dense soil has been glacially compressed, and is referred to as glacial till. The original topsoil and weathered layer had been stripped at this location to reach the glacial till prior to placing the 1.5 feet of fill soil. In the western test hole, fill was exposed to a depth of 2.5 feet. The original topsoil layer had been removed, but the fill was underlain by the typical weathered layer consisting of loose, slightly gravelly, silty sand that had mottling in it. Beneath the weathered soil was dense, glacial till. No seepage was exposed in the two test holes, which were conducted following several months of rainy weather. It is not uncommon to find at least localized zones of subsurface water perched on top of the impervious glacial till following extended wet weather.

## CONCLUSIONS AND RECOMMENDATIONS

### *GENERAL*

*THIS SECTION CONTAINS A SUMMARY OF OUR STUDY AND FINDINGS FOR THE PURPOSES OF A GENERAL OVERVIEW ONLY. MORE SPECIFIC RECOMMENDATIONS AND CONCLUSIONS ARE CONTAINED IN THE REMAINDER OF THIS REPORT. ANY PARTY RELYING ON THIS REPORT SHOULD READ THE ENTIRE DOCUMENT.*

Your property and the planned addition area are underlain by dense, glacially-compressed soil that will be stable under static and design earthquake conditions. The recommendations of this report are intended to prevent the planned new development from adversely impacting the stability of the steep slope located to the west of the planned development area.

We recommend that the foundations for the addition consist of conventional shallow footings bearing directly on the dense glacial till. This applies to all foundations, even interior footings that may only carry partition walls. Overexcavation below expected footing grades may be needed for the western portion of the addition, where deeper fill is present. Where this is necessary, either the foundation walls should be extended downward, or the overexcavation can simply be filled with concrete when the footing itself is poured.

The existing fill, and any remaining old topsoil, is not acceptable to support even a lightly-loaded floor slab without excessive post-construction settlement. If the lower floor will be a slab-on-grade, these soils should be removed, and be replaced using imported granular fill that is easily compacted, such as crushed rock. An alternative to the earthwork required to accomplish this would be to use a framed floor spanning between the foundations, allowing some or all of the fill to remain.

Soil removed from any excavations for the new construction should not be placed west of the new addition or the existing house. Disturbance of the existing vegetation on the steep slope should be avoided. If removal of any of the trees on, or below, the steep slope is planned after having an arborist's assessment, they should be cut down and removed leaving the stump and root ball in place. We could provide additional considerations for this, if tree removal is planned or deemed prudent to avoid a public hazard. A wire-backed silt fence or a construction fence should be erected close to the perimeter of the work area as a visible reminder of the non-disturbance area. Concentrated runoff from the new construction must not be discharged toward, or onto, the steep slope. The site soils are impervious and not feasible for infiltration. Dispersion of storm water is also not feasible, as it would adversely impact the stability of the steep slope.

Beyond the above-discussed silt fence, erosion control measures needed during the site development will depend heavily on the weather conditions that are encountered. Existing vegetation and pavements should be maintained wherever possible. Tracking of soil or mud onto the surrounding pavements must be avoided, and any soil carried offsite by tires or tracks should be immediately cleaned up. Any areas of bare soil around the excavations should be covered with straw, mulch, compost, plastic or gravel. As with any project, periodic maintenance or upgrading of erosion control measures may be necessary to address site conditions throughout construction.

The western slope meets the City of Bellevue's criteria for both a steep slope and a landslide hazard. The new construction will be closer than the City's prescriptive 65-foot building setback (50-foot buffer and 15-foot foundation setback) contained in the municipal code. As a result, we expect that a Critical Area Land Use Permit (CALUP) will need to be obtained. The recommendations presented in this report are intended to prevent adverse impacts to the stability of the slope and to protect the planned addition from potential future shallow slope movement, assuming a minimum buffer/setback of approximately 15 feet from the top of the steep slope. In order to respond to specific geotechnical criteria in the Bellevue Municipal Code for a CALUP, we present the following:

**20.25H.125 Performance standards – Landslide hazards and steep slopes.**

A. The new construction will generally be at, or slightly above, the existing grades. In general, the excavation will be limited to what is necessary to reach the dense bearing soils.
B. The new construction will not extend close to, or onto, the steep slope, preserving the existing landforms and vegetation. The existing buffer area west of the existing house and the proposed addition, above the steep slope, is generally covered with grass and landscaping, providing erosion protection.
C. The proposed development will not result in greater risk or a need for increased buffers on neighboring properties.
D. No significant slopes or retaining walls will be needed for the new construction.

E. The planned development will not encroach to the crest of the slope. The recommendations of this report are intended to prevent the new construction from adversely impacting slope stability.
F. We expect that very limited grading will be needed for the new construction.
G. At this time, freestanding retaining walls outside of the new construction are not anticipated.
H. The new construction will not occur on slopes in excess of 40 percent. As a result, pole-type construction does not need to be considered to limit the modifications to existing grades.
I. Parking or garages will not be constructed on slopes in excess of 40 percent. Therefore, piled deck support structures do not need to be considered.
J. Outside of the footprint of the new construction, we expect that all areas of new permanent disturbance and all areas of temporary disturbance will be mitigated with approved erosion control plans as a part of the building permit.

**Section 20.25H.145 Critical Areas Report – Approval of Modification:**

A. The proposal will not increase the geological hazards to adjacent properties.
B. The proposed modifications to the onsite buffers will not adversely impact other critical areas.
C. The hazard to the project is mitigated to a level equal to or less than would exist if the proposed modifications to critical area buffers were not approved.
D. The proposed development protects life safety under the conditions that we anticipate.
E. This geotechnical report is intended to satisfy this criteria.
F. From our understanding of the current development proposal, it will comply with best management practices.
G. We are not aware of any species of importance in the planned work area.

We recommend including this report, in its entirety, in the project contract documents. This report should also be provided to any future property owners so they will be aware of our findings and recommendations.

## *SEISMIC CONSIDERATIONS*

In accordance with the International Building Code (IBC), the site class within 100 feet of the ground surface is best represented by Site Class Type C (very dense soil).

The glacially-compressed soil that will support the foundations is not susceptible to liquefaction (soil bearing loss), even under the Maximum Considered Earthquake (MCE), which has a probability of occurring once in 2,475 years (2% probability of occurring in 50 years).

## *CONVENTIONAL FOUNDATIONS*

We recommend that continuous and individual spread footings have minimum widths of 16 and 24 inches, respectively. Exterior footings should also be bottomed at least 18 inches below the lowest adjacent finish ground surface for protection against frost and erosion. The local building codes should be reviewed to determine if different footing widths or embedment depths are required. Footing subgrades must be cleaned of loose or disturbed soil prior to pouring concrete. Depending upon site and equipment constraints, this may require removing the disturbed soil by hand.

An allowable bearing pressure of 2,500 pounds per square foot (psf) is appropriate for footings supported on competent native soil. A one-third increase in this design bearing pressure may be used when considering short-term wind or seismic loads. For the above design criteria, it is anticipated that the total post-construction settlement of footings founded on competent native soil

will be less than one-half-inch, with differential settlements on the order of one-quarter-inch in a distance of 25 feet along a continuous footing with a uniform load.

Lateral loads due to wind or seismic forces may be resisted by friction between the foundation and the bearing soil, or by passive earth pressure acting on the vertical, embedded portions of the foundation. For the latter condition, the foundation must be either poured directly against relatively level, undisturbed soil or be surrounded by level, well-compacted fill. We recommend using the following ultimate values for the foundation's resistance to lateral loading:

| PARAMETER | ULTIMATE VALUE |
|---|---|
| Coefficient of Friction | 0.40 |
| Passive Earth Pressure | 300 pcf |

**Where: pcf is Pounds per Cubic Foot, and Passive Earth Pressure is computed using the Equivalent Fluid Density.**

If the ground in front of a foundation is loose or sloping, the passive earth pressure given above will not be appropriate. The above ultimate values for passive earth pressure and coefficient of friction do not include a safety factor.

## *SLABS-ON-GRADE*

The building floors can be constructed as slabs-on-grade atop non-organic native soils, or compacted structural fill placed on competent native soils. The subgrade soil must be in a firm, non-yielding condition at the time of slab construction or underslab fill placement. Any soft areas encountered should be excavated and replaced with select, imported structural fill.

Even where the exposed soils appear dry, water vapor will tend to naturally migrate upward through the soil to the new constructed space above it. This can affect moisture-sensitive flooring, cause imperfections or damage to the slab, or simply allow excessive water vapor into the space above the slab. All interior slabs-on-grade should be underlain by a capillary break drainage layer consisting of a minimum 4-inch thickness of clean gravel or crushed rock that has a fines content (percent passing the No. 200 sieve) of less than 3 percent and a sand content (percent passing the No. 4 sieve) of no more than 10 percent. Pea gravel or crushed rock are typically used for this layer.

As noted by the American Concrete Institute (ACI) in the *Guides for Concrete Floor and Slab Structures*, proper moisture protection is desirable immediately below any on-grade slab that will be covered by tile, wood, carpet, impermeable floor coverings, or any moisture-sensitive equipment or products. ACI recommends a minimum 10-mil thickness vapor retarder for better durability and long term performance than is provided by 6-mil plastic sheeting that has historically been used. A vapor retarder is defined as a material with a permeance of less than 0.3 perms, as determined by ASTM E 96. It is possible that concrete admixtures may meet this specification, although the manufacturers of the admixtures should be consulted. Where vapor retarders are used under slabs, their edges should overlap by at least 6 inches and be sealed with adhesive tape. The sheeting should extend to the foundation walls for maximum vapor protection.

If no potential for vapor passage through the slab is desired, a vapor *barrier* should be used. A vapor barrier, as defined by ACI, is a product with a water transmission rate of 0.01 perms when

tested in accordance with ASTM E 96. Reinforced membranes having sealed overlaps can meet this requirement.

### *DRAINAGE CONSIDERATIONS*

Footing drains should be used where: (1) crawl spaces or basements will be below a structure; (2) a slab is below the outside grade; or, (3) the outside grade does not slope downward from a building. A typical footing drain would consist of 4-inch-diameter perforated pipe surrounded by free-draining gravel that is encircled with a non-woven filter cloth (Mirafi 140N, Supac 4NP, or similar material). At its highest point, a perforated pipe invert should be at least 6 inches below the bottom of a slab floor or the level of a crawl space. The discharge pipe for subsurface drains should be sloped for flow to the outlet point. Roof and surface water drains must not discharge into the foundation drain system. For the best long-term performance, perforated PVC pipe is recommended for all subsurface drains. Clean-outs should be provided for potential future flushing or cleaning of footing drains.

As a minimum, a vapor retarder, as defined in the ***Slabs-On-Grade*** section, should be provided in any crawl space area to limit the transmission of water vapor from the underlying soils. Crawl space grades are sometimes left near the elevation of the bottom of the footings. As a result, an outlet drain is recommended for all crawl spaces to prevent an accumulation of any water that may bypass the footing drains. Providing a few inches of free draining gravel underneath the vapor retarder is also prudent to limit the potential for seepage to build up on top of the vapor retarder.

No groundwater was observed during our field work. If seepage is encountered in an excavation, it should be drained from the site by directing it through drainage ditches, perforated pipe, or French drains, or by pumping it from sumps interconnected by shallow connector trenches at the bottom of the excavation.

The excavation and site should be graded so that surface water is directed off the site and away from the tops of slopes. Water should not be allowed to stand in any area where foundations, slabs, or pavements are to be constructed. Final site grading in areas adjacent to foundations should slope away at least one to 2 percent, except where the area is paved. Surface drains should be provided where necessary to prevent ponding of water behind foundation walls.

## ***LIMITATIONS***

The conclusions and recommendations contained in this report are based on site conditions as they existed at the time of our exploration and assume that the soil and groundwater conditions anticipated are representative of subsurface conditions on the site. If the subsurface conditions encountered during construction are significantly different from those expected, we should be advised at once so that we can review these conditions and reconsider our recommendations where necessary. Such unexpected conditions frequently require making additional expenditures to attain a properly constructed project. It is recommended that the owner consider providing a contingency fund to accommodate such potential extra costs and risks. This is a standard recommendation for all projects.

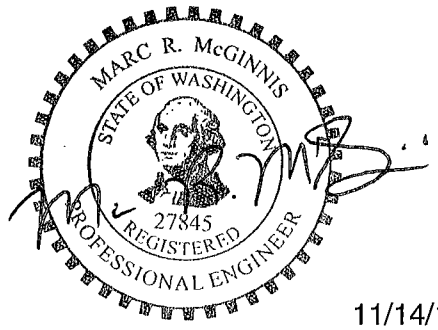
This report has been prepared for the exclusive use of Joseph Riley and his representatives, for specific application to this project and site. Our conclusions and recommendations are professional opinions derived in accordance with current standards of practice within the scope of our services

and within budget and time constraints. No warranty is expressed or implied. The scope of our services does not include services related to construction safety precautions, and our recommendations are not intended to direct the contractor's methods, techniques, sequences, or procedures, except as specifically described in our report for consideration in design. Our services also do not include assessing or minimizing the potential for biological hazards, such as mold, bacteria, mildew and fungi in either the existing or proposed site development.

If you have any questions regarding this report, or if we may be of further service, please do not hesitate to contact us.

Respectfully submitted,

GEOTECH CONSULTANTS, INC.



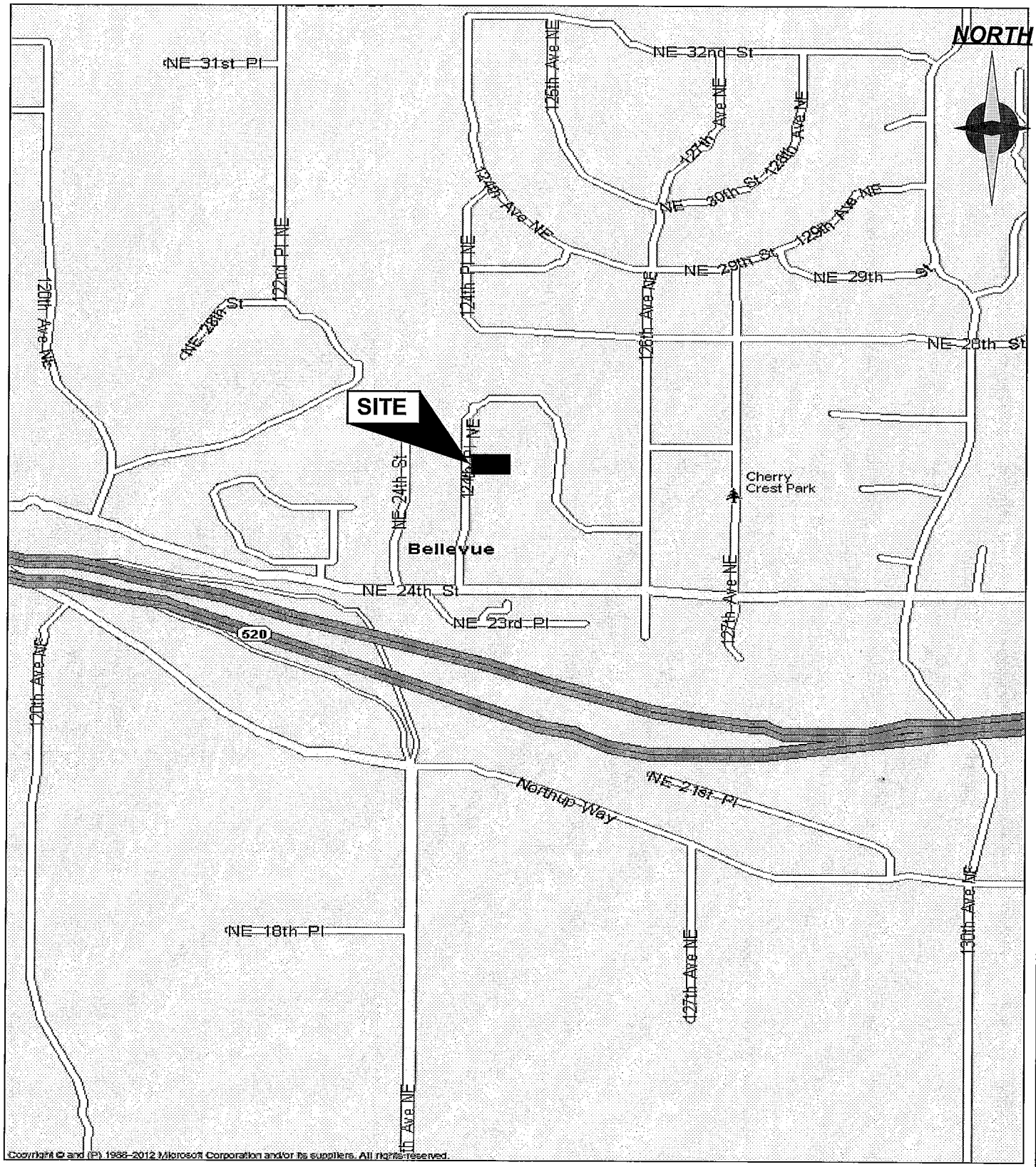

11/14/19
Marc R. McGinnis, P.E.
Principal

Attachments:

- Vicinity Map
- Site Exploration Plan
- Test Hole Logs

cc: **Shugart Wasse Wickwire** – Matt Wasse
*via email: matt@sww-ai.com*

MRM: kg



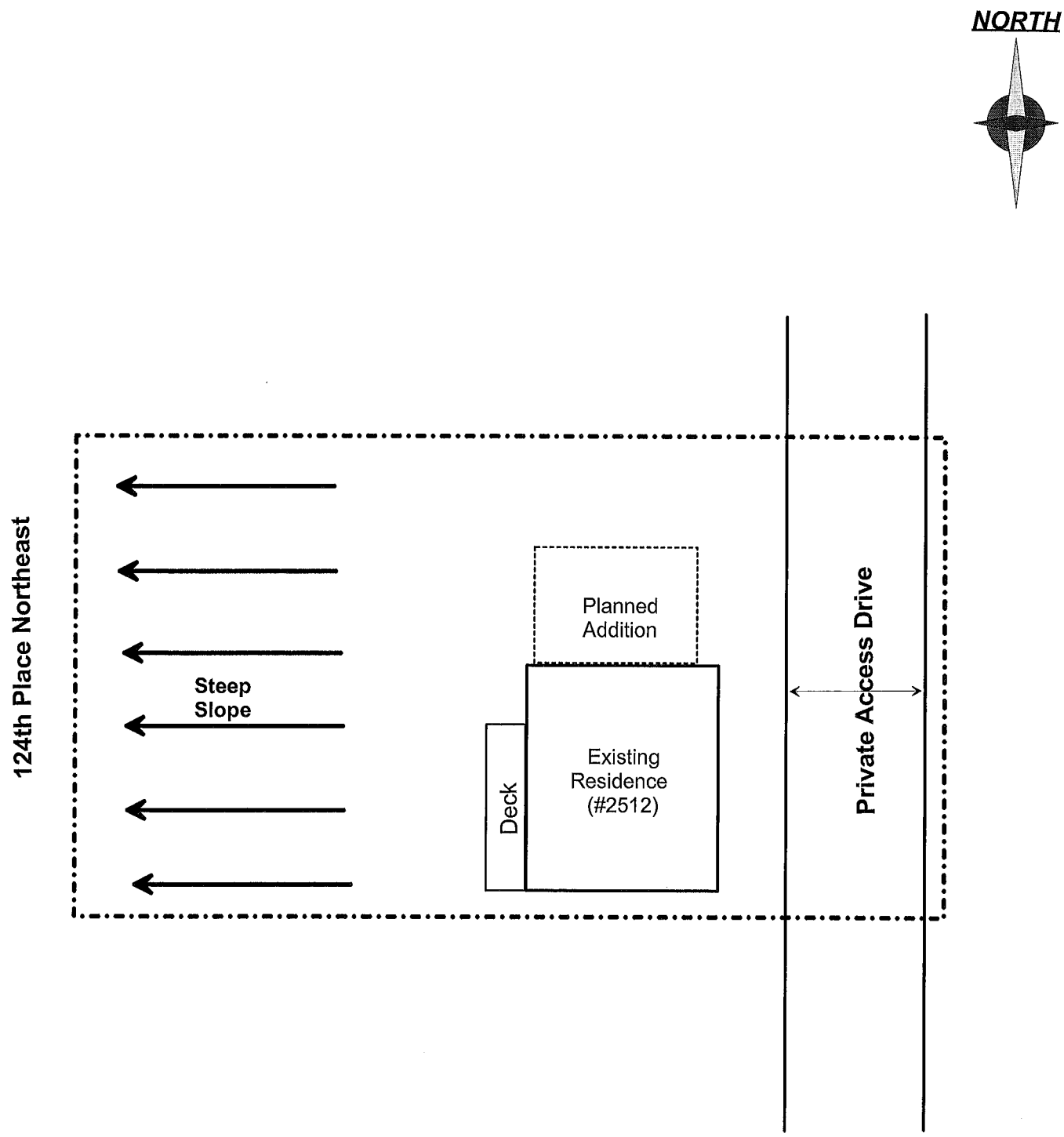

*(Source: Microsoft MapPoint, 2013)*

**GEOTECH**
**CONSULTANTS, INC.**

# VICINITY MAP

2512 - 124th Place N.E.
Bellevue, Washington

| Job No: | Date: | | Plate: |
|---|---|---|---|
| 19423 | Nov. 2019 | | 1 |




**Legend:**

TH-1 Test Hole Location

GEOTECH CONSULTANTS, INC.

# SITE EXPLORATION PLAN

2512 - 124th Place N.E.
Bellevue, Washington

| Job No: | Date: | | Plate: |
|---|---|---|---|
| 19423 | Nov. 2019 | No Scale | 2 |

## TEST HOLE 1

| Depth (feet) | Soil Description |
|---|---|
| 0 – 1.5 | Sod over brown, slightly gravelly, silty SAND, fine-grained, moist, loose (FILL) |
| 1.5 – 2.0 | Gray, slightly gravelly, silty SAND, fine-grained, moist, very dense (Glacial Till) |

Test Hole was terminated at a depth of 2.0 feet on October 29, 2019.
No groundwater seepage was observed in the test hole.

## TEST HOLE 2

| Depth (feet) | Soil Description |
|---|---|
| 0 – 2.5 | Sod over gray to brown, slightly gravelly, silty SAND, fine-grained, moist, loose (FILL) |
| 2.5 – 4.0 | Brown, mottled, slightly gravelly, silty SAND, fine-grained, moist, loose |
| 4.0 – 5.0 | Gray, slightly gravelly, silty SAND, fine-grained, moist, medium-dense<br>-becomes dense at 5.0 feet (Glacial Till) |

Test Hole was terminated at a depth of 5.0 feet on October 29, 2019.
No groundwater seepage was observed in the test hole.

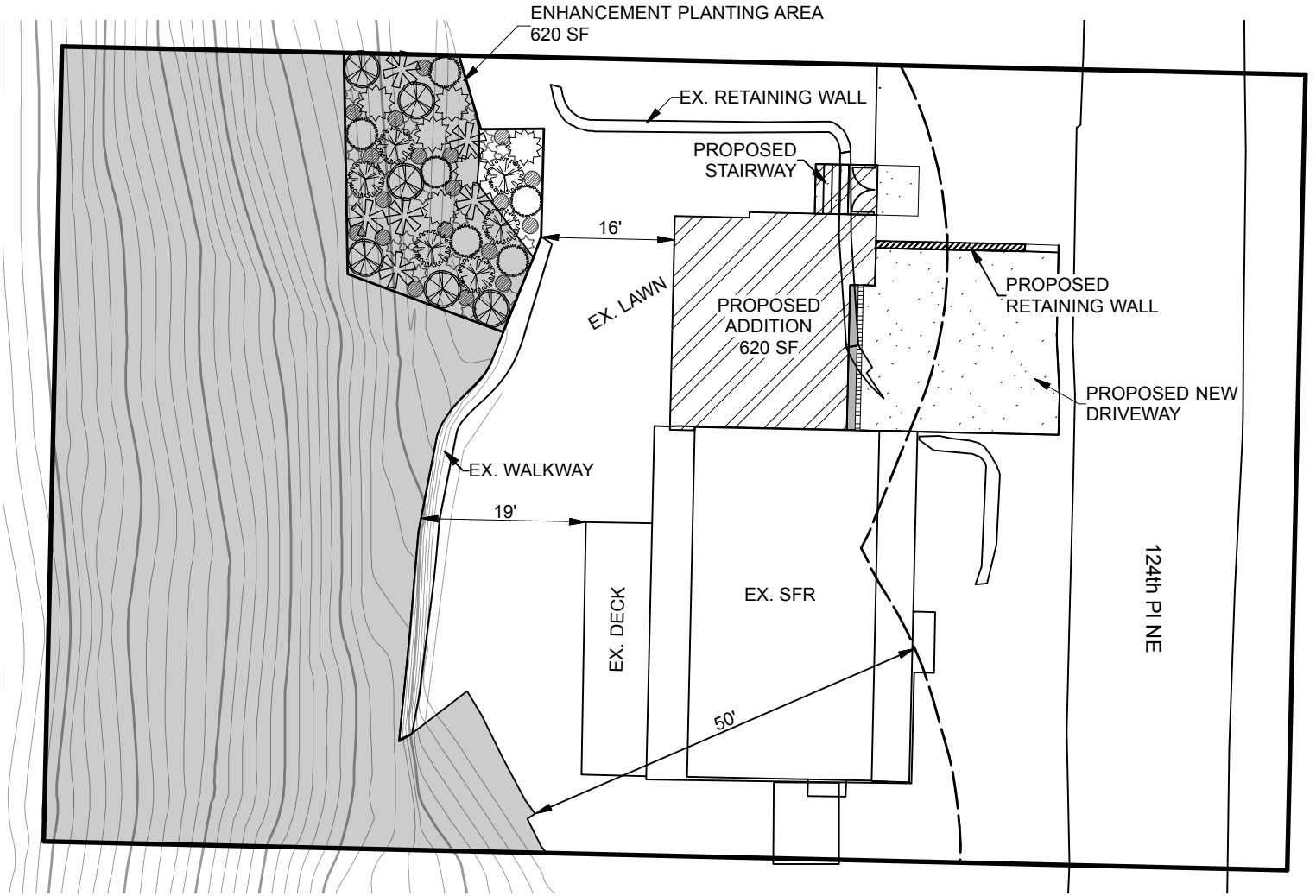
# APPENDIX B

## CRITICAL AREAS REPORT AND MITIGATION PLAN MAP

# CRITICAL AREAS REPORT AND MITIGATION PLAN MAP

## ***RILEY - 124TH PL NE***

PORTION OF SECTION 21, TOWNSHIP 25N, RANGE 05E, W.M.




| PLANT KEY |
|---|
| RED ELDERBERRY |
| BEAKED HAZELNUT |
| OCEANSPRAY |
| THIMBLEBERRY |
| SNOWBERRY |
| DULL OREGON-GRAPE |
| WESTERN SWORD FERN |

PLEASE NOTE: THE PLANT LAYOUT PRESENTED HERE MAY BE MODIFIED AT THE TIME OF INSTALLATION DUE TO SITE CONDITIONS AND/OR EXISTING NATIVE VEGETATION.

| LEGEND |
|---|
| STEEP SLOPES >40% |
| STEEP SLOPE BUFFER |
| BUFFER IMPACT AREA |

**Scale 1" = 20'**

0 10 20 30 40


Wetland Resources, Inc.
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CRITICAL AREAS REPORT AND MITIGATION PLAN MAP
***RILEY - 124TH PL NE***
City of Bellevue

Sheet 1/1

Joe Riley
2512 124th Pl NE
Bellevue, WA 98005

WRI #: 20043
Drawn by: AR
Date: 11/2/2020